

Claims -

1. A hydrophilic, crosslinkable oligomer composition comprising
 - a) a first component oligomer comprising a plurality of polymerized monomer units having pendent hydrophilic poly(alkylene oxide) groups, and pendent free-radically polymerizable functional groups; and
 - b) a hydrophilic poly(alkylene oxide) crosslinking agent having polymerizable, ethylenically unsaturated terminal groups.
2. The composition of claim 1 wherein said crosslinking agent is of the formula
$$Z-Q-\text{CH}(\text{R}^1)-\text{CH}_2-\text{O}- (\text{CH}(\text{R}^1)-\text{CH}_2-\text{O})_m-\text{CH}(\text{R}^1)-\text{CH}_2-Q-Z,$$
wherein Z is a polymerizable ethylenically unsaturated moiety, R¹ is a H or a C₁ to C₄ alkyl group, and m is from 20 to 500, and Q is a divalent linking group selected from -O-, -NR¹- , -CO₂- and -CONR¹-.
3. The oligomer composition of claim 1 wherein the composition is melt-processible at temperatures of 100°C or less.
4. The composition of claim 1 wherein said composition has a residual content of less than 2 weight %.
5. The composition of claim 1, wherein said oligomer a) has an average degree of polymerization of less than 300.
6. The composition of claim 1 wherein said oligomer a) has a degree of polymerization of less than 300.
7. The composition of claim 1, wherein said crosslinking agent is a poly(ethylene oxide) (co)polymer.
8. The composition of claim 1, wherein said crosslinking agent is a poly(ethylene oxide-co-propylene oxide) copolymer.

9. The composition of claim 1 wherein said first component oligomer comprises:
- a) from 20 to 99 parts by weight of polymerized monomer units having pendent, hydrophilic poly(alkylene oxide) groups, and
 - b) from 0.1 to 25 parts by weight of polymerized monomer units derived from of an ethylenically-unsaturated monomer having a pendent polymerizable group; or
 - c) from 0 to 25 parts by weight of polymerized monomer units derived from of an ethylenically-unsaturated monomer having a pendent photoinitiator group; and
 - d) from 0 to 30 parts by weight of polymerized monomer units derived from acrylic acid esters, preferably of non-tertiary alkyl alcohols containing 1-14 carbon atoms; and
 - e) from 0 to 35 parts by weight of at least one other monomer.
- 10 15 10. The composition of claim 1 wherein said first oligomer having pendent unsaturated polymerizable groups is prepared by the reaction of an oligomer having a plurality of pendent reactive functional groups with an unsaturated compounds having co-reactive functional groups.
- 20 11. The composition of claim 10 wherein said pendent reactive functional groups are selected from hydroxyl, amino, oxazolinyl, oxazolonyl, acetyl acetonyl, carboxyl, isocyanato, epoxy, aziridinyl, acyloyl halide, and cyclic anhydride groups.
- 25 12. The composition of claim 1 which comprises an amount of said crosslinking agent is sufficient to provide more than two crosslinks per first component oligomer chain.
13. The composition of claim 1 which comprises:
- (a) from 80 to 99.9 parts by weight of said first component oligomer, and
 - (b) from 0.1 to 50 parts by weight of said crosslinking agent,
- 30 wherein the composition, when crosslinked, can absorb at least 50 wt.% water.
14. The composition of claim 1 further comprising a non-polymeric photoinitiator.

15. A crosslinked composition comprising the composition of claim 1, having an average molecular weight between crosslinks of at least 1000.

5 16. The composition of claim 2, wherein said Z of said crosslinking agent is selected from

$\begin{array}{c} \text{O} \\ \parallel \\ -\text{C}-\text{C}=\text{CH}_2 \\ \\ \text{R}^3 \end{array}$	$\begin{array}{c} \text{O} \\ \parallel \\ -\text{C}-\text{C}_r\text{H}_{2r}-\text{N}-\text{C}=\text{CH}_2 \\ \\ \text{R}^3 \\ \\ \text{O} \end{array}$
$\begin{array}{c} \text{O} \\ \parallel \\ -\text{C}-\text{C}_r\text{H}_{2r}-\text{O}-\text{C}=\text{CH}_2 \\ \\ \text{O} \\ \\ \text{R}^3 \end{array}$	$\begin{array}{c} \text{O} \\ \parallel \\ -\text{C}-\text{O}-\text{C}_r\text{H}_{2r}-\text{O}-\text{C}=\text{CH}_2 \\ \\ \text{O} \\ \\ \text{R}^3 \end{array}$
$\begin{array}{c} \text{O} \\ \parallel \\ -\text{C}-\text{O}-\text{C}_r\text{H}_{2r}-\text{N}-\text{C}=\text{CH}_2 \\ \\ \text{R}^3 \\ \\ \text{O} \\ \\ \text{R}^3 \end{array}$	$\begin{array}{c} \text{O} \\ \parallel \\ -\text{C}-\text{NR}^3\text{C}_r\text{H}_{2r}-\text{O}-\text{C}=\text{CH}_2 \\ \\ \text{O} \\ \\ \text{R}^3 \end{array}$
-CH=CH ₂ , and	-C _r H _{2r} -CH=CH ₂

wherein R³ is H or Me and r = 1-10.

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17. A process for making a substrate bearing a coating of a crosslinked polymer composition on at least one surface thereof, comprising the steps of:

- coating onto said substrate the oligomer composition of claim 1; and
- photochemically crosslinking said first component oligomer and

15 crosslinking agent, in the presence of a photoinitiator.

18. The process of claim 17 wherein said oligomer composition has been partially converted to a coatable viscosity of from 750 to 7,500 cPs at 22°C prior to step a.

20 19. The process of claim 17 wherein said oligomer composition comprises

- per 100 parts by weight of said first component, an amount of said crosslinking agent sufficient to provide more than two crosslinks per first component oligomer chain;
- less than 2 parts by weight residuals content; and

- c) from 0.01 to about 5.0 parts by weight of a photoinitiator.
20. The process of claim 17 wherein said first component oligomer comprises:
- a) from 20 to 99 parts by weight of polymerized monomer units having pendent, hydrophilic poly(alkylene oxide) groups, and
 - b) from 0.1 to 25 parts by weight of polymerized monomer units derived from of an ethylenically-unsaturated monomer having a pendent polymerizable group; or
 - c) from 0 to 25 parts by weight of polymerized monomer units derived from of an ethylenically-unsaturated monomer having a pendent photoinitiator group; and
 - d) from 0 to 30 parts by weight of polymerized monomer units derived from acrylic acid esters, preferably of non-tertiary alkyl alcohols containing 1-14 carbon atoms; and
 - e) from 0 to 35 parts by weight of at least one other monomer.
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21. The process of claim 17 wherein the molecular weight (M_n) of said first oligomer is less than the entanglement molecular weight.
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22. The process of claim 17 wherein the average degree of polymerization of the first and second component oligomers is ≤ 300 .
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23. The process of claim 17 wherein said first component oligomer further comprises pendent photoinitiator groups.
24. The process of claim 17 wherein said photoinitiator comprises a separate, component.
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25. An absorbent dressing comprising a crosslinked hydrophilic gel absorbent layer of claim 1.
26. The absorbent dressing of claim 25 comprising:

a permeable facing layer,
a backing layer bonded to said facing layer at the periphery, and
a hydrophilic gel absorbent layer disposed between the backing and facing layer.

5 27. The absorbent dressing of claim 25 having a layer of pressure sensitive adhesive on
at least a portion of the front surface of the facing layer.

28. The absorbent dressing of claim 25 wherein the gel layer further comprises a
pharmacologically active agent.

10 29. The absorbent dressing of claim 25 wherein the gel layer further comprises a
hydrocolloid.

15 30. The absorbent dressing of claim 25 wherein the gel layer further comprises a
patterned surface.

31. The absorbent dressing of claim 25, wherein said absorbent layer is transparent on
swelling.

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